

**REMARKS/ARGUMENTS**

**Remarks Regarding Claim Amendments**

The amendment to claim 17 is supported by canceled claim 20 and in the specification on page 14, lines 27-28.

Claim 21 depended on claim 20 and claim 20 was canceled in the instant Response. For that reason, claim 21 is amended to depend pending claim 17.

Claim 23 was amended to be consistent with claim 17 by reciting "tooth enamel."

New claim 32 is supported by canceled claim 12.

New claim 33 is supported by canceled claim 13.

The claim amendments, listed above, do not add new matter to the specification and their entry is requested.

**Comments regarding Claim Objections**

Claims 1 and 10 were objected to as allegedly containing informalities. Applicants traverse. These claims have been canceled so this objection is now moot. Withdrawal of the objection is respectfully requested.

Claim 17 was objected to as allegedly informal because the word "determine" is used. While Applicants disagree, we have amended the claim to use the term "determining" as suggested by the Examiner. Thus, this objection is moot and should be withdrawn.

**Comments regarding 35 U.S.C. § 112**

First, claims 1-16 stand rejected under 35 U.S.C. § 112 as allegedly indefinite. Second, claim 4 stands rejected under 35 U.S.C. § 112 as allegedly indefinite. Third, claim 16 stands rejected under 35 U.S.C. § 112 as allegedly indefinite. Applicants

traverse these rejections. However, solely in an effort to expedite prosecution, these claims have been canceled and these rejections are moot. The withdrawal of these rejections is respectfully requested.

Claims 17-25 stand rejected under 35 U.S.C. § 112 as allegedly indefinite because claim 17 omitting a step. Claims 18-25 are rejected since they depend on an allegedly indefinite base claim. Applicants have amended claim 17 to recite “determining a birth date of said tooth enamel” according to the Examiner’s suggestion. Applicants assert that this rejection is moot in view of Applicant’s amendment to claim 17 and should be withdrawn.

Claim 23 stand rejected under 35 U.S.C. § 112 as allegedly indefinite because the phrase “said animal” lack antecedent basis. Applicants have amended claim 23 to depend on amended claim 17. Antecedent basis for “said animal” may be found in amended claim 17.

Claims 26-27 stand rejected under 35 U.S.C. § 112 as allegedly indefinite. Applicants traverse. Solely in an effort to expedite prosecution, Applicants have canceled claims 26-27 so this rejection is moot.

Claims 28-30 stand rejected under 35 U.S.C. § 112 as allegedly indefinite. Applicants traverse. Solely in an effort to expedite prosecution, Applicants have canceled claims 28-30 so this rejection is moot.

For the reasons stated above, Applicants have addressed each of the rejections under 35 U.S.C. § 112 by canceling claims or by correcting the claims language as suggested by the Examiner. The withdrawal of these rejections is earnestly requested.

#### **Comments regarding 35 U.S.C. § 102**

Claims 1, 3-6, 11-13, 17-18, 22 and 31 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Robertson (J. of Radioanalytical and Nuclear Chemistry, August 2001). Applicants traverse. Applicants note that claims 1, 3-6, 11-13, 18 and 31 have

been canceled. Thus, only claims 17 and 22 remain rejected.

Applicants assert that amended claim 17, which incorporates the recitations of claim 20, is not anticipated by Robertson. Applicants note that claim 20 has not been rejected as being anticipated by Robertson. To expedite prosecution, Applicants have incorporated the recitations of claim 20 into claim 17. Since claim 20 was not anticipated by Robertson, claim 17, by incorporating the recitation of claim 20, is also not anticipated by Robertson. Claim 22 depends on claim 17, incorporates the recitations of claim 17, and is not anticipated by Robertson for the same reason as amended claim 17.

For the reasons stated above, Applicants assert that claims 17 and 22, as amended by Applicants, are no longer anticipated by Robertson. The withdrawal of the rejection of claims 17 and 22 under 35 U.S.C. § 102 is respectfully requested.

Claims 1-5, 7, 8, 11-13, 17-18, 22, 23 and 31 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Wild (Radiocarbon, 1998). Applicants traverse. Applicants note that claims 1-5, 7, 8, 11-13, 18 and 31 were canceled. Thus, only claims 17, 22 and 23 remain rejected.

Applicants assert that amended claim 17, which incorporates the recitations of claim 20 is not anticipated by Wild. Applicants note that claim 20 has not been rejected as being anticipated by Wild. To expedite prosecution, Applicants have incorporated the recitations of claim 20 into amended claim 17. Since claim 20 was not anticipated by Wild, amended claim 17, by incorporating the recitation of claim 20, is also not anticipated by Wild. Claims 22 and 23 depend on claim 17, incorporate the recitations of claim 17, and are not anticipated by Wild for the same reason as amended claim 17.

For the reasons stated above, Applicants assert that claims 17, 22 and 23, as amended by Applicants, are no longer anticipated by Wild. The withdrawal of the rejection of claims 17, 22 and 23 under 35 U.S.C. § 102 is respectfully requested.

Claims 1, 4, 11, 17-18, 22-24 and 31 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Kalish (Marine Biology, 1997). Applicants traverse. Further,

Applicants note that claims 1, 4, 18, 24 and 31 were canceled. Thus only claims 17, 22 and 23 remain rejected.

Applicants assert that amended claim 17, which incorporates the recitations of claim 20 is not anticipated by Kalish. Applicants note that claim 20 has not been rejected as being anticipated by Kalish. To expedite prosecution, Applicants have incorporated the recitations of claim 20 into amended claim 17. Since claim 20 was not anticipated by Kalish, amended claim 17, by incorporating the recitation of claim 20, is also not anticipated by Kalish. Claims 22 and 23 depend on claim 17, incorporate the recitations of claim 17, and are not anticipated by Kalish for the same reason as amended claim 17.

For the reasons stated above, Applicants assert that claims 17, 22 and 23, as amended by Applicants, are no longer anticipated by Kalish. The withdrawal of the rejection of claims 17, 22 and 23 under 35 U.S.C. § 102 is respectfully requested.

Claims 1, 3-5, 7-8, 11, 17-19 and 22 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Bonnichsen (J. of Archaeological Science, July 2001). Applicants traverse. Further, Applicants note that claims 1, 3-5, 7-8, 11 18-19 have been canceled. Thus only claims 17 and 22 remain rejected.

Applicants assert that amended claim 17, which incorporates the recitations of claim 20, is not anticipated by Bonnichsen. Applicants note that claim 20 has not been rejected as being anticipated by Bonnichsen. To expedite prosecution, Applicants have incorporated the recitations of claim 20 into claim 17. Since claim 20 was not anticipated by Bonnichsen, claim 17, by incorporating the recitation of claim 20, is also not anticipated by Bonnichsen. Claim 22 depends on claim 17, incorporates the recitations of claim 17, and is not anticipated by Bonnichsen for the same reason as amended claim 17.

For the reasons stated above, Applicants assert that claims 17 and 22, as amended by Applicants, are no longer anticipated by Bonnichsen. The withdrawal of the rejection of claims 17 and 22 under 35 U.S.C. § 102 is respectfully requested.

Claims 1, 3-5, 11, 17-18 and 20-23 stand rejected under 35 U.S.C. § 102 as allegedly anticipated by Hedges (Radiocarbon, 1995). Applicants traverse. Applicants note that claims 1, 3-5, 11, 18, and 20 have been canceled. Thus, only claims 17 and 21-23 remain rejected by Hedges.

Hedges is directed to a method of determining the ages of molecules using tradition carbon-14 methods. Since carbon 14 has a half life of about 5730 years, conventional carbon 14 dating techniques, as discussed in Hedges, would have a high uncertainty. Hedges' data, as summarized in Table 1 (Hedges page 288), show an error range of 80 year to 1700 years. This is not a problem for Hedges because, as seen in Hedges' data, all of Hedges experiments are directed to samples with ages from 5360 years old to samples which are 40,600 years old and Hedges' error rate is only a minor fraction of the actual age of his samples (See Hedges, Table 1).

However, unlike Hedges, the method of the claimed invention is direct to the measurement of the age of tooth enamel with an accuracy of within 5 years (See, instant claim 17). The method of Hedges, which has an error range of 80 years to 1700 years, cannot be used in the claimed method to produce a meaningful result. Since Hedges has not disclosed a reliable method for determining age of tooth enamel to within 5 years, Hedges cannot anticipate the claimed invention.

Claims 21-23 depend on amended claim 17, incorporates the recitation of amended claim 17, and are not anticipated by Hedges for same reason as amended claim 17.

For the reasons stated above, Applicant's claimed invention is not anticipated by Hedges and the rejection of claims 17 and 21-23 as allegedly anticipated by Hedges under 35 U.S.C. § 102 should be withdrawn.

**Comments regarding 35 U.S.C. § 103**

Claims 9, 10 and 14-16 stand rejected under 35 U.S.C. § 103 as allegedly obvious in view of Robertson (J. Radioanalytical and Nuclear Chemistry, August 2001), Sheehy (Archives of Gerontology and Geriatrics, May-June 2002) and Robertson (Neurobiology of Aging January 2002). Applicants traverse.

While Applicants disagree with this rejection, this rejection is moot because claims 9, 10 and 14-16 have been canceled. For this reason, withdrawal of this rejection is earnestly requested.

Claims 24 and 25 stand rejected under 35 U.S.C. § 103 as allegedly obvious in view of Robertson and Sheehy. Applicants traverse.

While Applicants disagree with this rejection, this rejection is moot because claims 24 and 25 have been canceled. For this reason, withdrawal of this rejection is earnestly requested.

Claim 26 stands rejected under 35 U.S.C. § 103 as allegedly obvious in view of Hellerstein and Robertson (U.S. Patent 6,010,846). Applicants traverse.

While Applicants disagree with this rejection, this rejection is moot because claim 26 has been canceled. For this reason, withdrawal of this rejection is earnestly requested.

Claims 26-30 stand rejected under 35 U.S.C. § 103 as allegedly obvious in view of Czeh and Robertson (PNAS, October 2001). Applicants traverse.

While Applicants disagree with this rejection, this rejection is moot because claim 26-30 have been canceled. For this reason, withdrawal of this rejection is earnestly requested.

Claims 26-30 stand rejected under 35 U.S.C. § 103 as allegedly obvious in view of Madsen et al. (Biological Psychiatry, 2000) and Robertson. Applicants traverse.

While Applicants disagree with this rejection, this rejection is moot because claim 26-30 have been canceled. For this reason, withdrawal of this rejection is earnestly requested.

## CONCLUSION

A favorable action on the merits is respectfully requested. If further discussion of this case is deemed helpful, the Examiner is encouraged to contact the undersigned at the telephone number provided below, and is assured of full cooperation in progressing the instant claims to allowance.

While Applicants believes that no additional fees are required, the Commissioner is authorized to charge any additional fees that may be due, or to credit any overpayment, to the undersigned's account, Deposit Account No. 50-0311, Reference No. 21882-513 UTIL (Customer Number: 35437).

Respectfully submitted,

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Eric Sinn, Reg. No. 40,177  
Attorneys for Applicants  
MINTZ, LEVIN, COHN, *et al.*  
666 Third Avenue, 24th Floor  
New York, New York 10017  
Telephone: (212) 935-3000  
Telefax: (212) 983-3115